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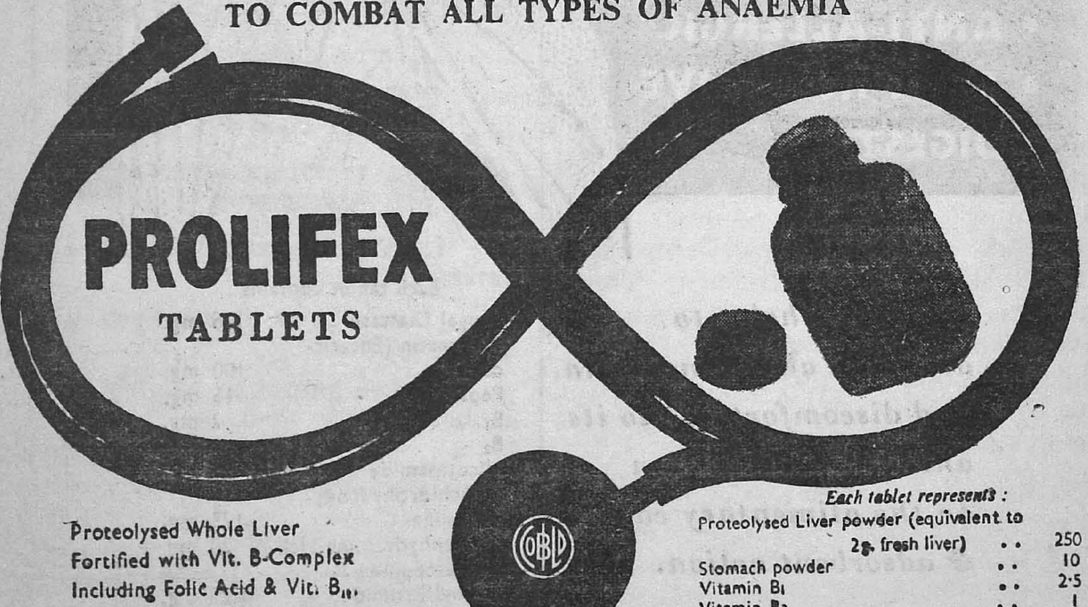

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Vol. XXVIII March 1962 No. 9

ACUTE APPENDICITIS

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It is proposed to review the various aspects of acute appendicitis, in the light of experience gained in a personal series of 180 cases, over a six year period (1954–'60) in this article.

Incidence: Acute appendicitis ranked as the most frequent cause in a series of 537 cases of acute abdominal surgical conditions seen by the author during the period 1954–'60, the percentage of incidence being 36. According to British authors[4], the incidence of acute appendicitis is 1 : 700 of the population. The incidence in South India is comparatively not so high, though of late the rate shows a tendency to go up, due to increased literacy and consequent awareness of the disease.

The disease was seen predominantly in males, the ratio being 4:1 for M:F. The incidence in Monro's series, quoted by Maingot[5] showed an equal ratio between the two sexes whereas in America the ratio was 2:1.

The maximal incidence is between the second and third decades, as shown in the table below.

TABLE I.

Years.	Present series.	Fitz's series.
0—10	1·1%	10%
10—20	22%	38%
20—39	67·7%	43%
above 40	8·8%	9%

Etiology: We are still in the dark as to the exact factors which initiate an attack. The various factors incriminated as probable causes are:

1. Infection
2. Obstruction
3. Heredity
4. Racial and dietetic factors
5. Parasites and foreign bodies
6. Constipation and purgatives.

Most surgeons are aware of an increased incidence of acute appendicitis after an epidemic of respiratory infection. The lymph follicles in the wall of the appendix enlarge as part of a generalised reaction of the lymphoid tissue all over the body in response to the respiratory infection, and produce moderate obstruction to the lumen of the appendix which starts an acute attack.

Rosenow's theory of elective affinity of specific bacteriae is unlikely to be a cause, as various organisms can cause the disease. The hereditary pre-disposition theory has been discarded owing to lack of evidence.

The high incidence in the European races who are accustomed to a low residue, high protein non-vegetarian diet, and the low incidence in the Afrasian races, who take a high carbohydrate, coarse, high residue diet, lead one to think of dietetic factors as the cause. In our series, most of them were vegetarians used to a high carbohydrate, low protein type of diet. So we cannot incriminate the diet as such in these cases. In a few cases, intestinal parasites, foreign bodies, constipation, and purgatives have acted as predisposing factors by producing obstruction and spasm. The real cause, in most cases, is obstruction, resulting in increased intralumenal pressure with secondary infection. Congenital or inflammatory adhesions, or kinks, faecoliths, worms and rarely neoplasams, predispose to obstruction. In a few cases, infection is primary, followed by a narrowing of the lumen due to inflammatory oedema and subsequent obstruction.

Pathology: Depending on the existence of obstruction, we classify these cases into:

(1) Acute appendicitis without obstruction.
  - (a) Catarrhal.
  - (b) Suppurative.
  - (c) Gangrenous.
  - (d) Acute subsiding.

(2) Acute obstructive appendicitis.
  - (a) With localised peritonitis.
  - (b) With generalised peritionitis

In this series, 55% belonged to the non-obstructive group. Perforation occurred in 55% of the total cases.

The common organisms usually involved are B Coli and streptococci. The route of infection may be through the blood stream, from the lumen or from the neighbourhood. Inflammation of the mucous membrane first occurs, which later spreads to the muscular and serous coat (catarrhal appendicitis). The whole appendix becomes congested, swollen and rigid due to massive leucocytic infiltration of its walls. Localised peritonitis occurs from the inflamed serous coat. The omentum and coils of ileum in the vicinity become adherent to the appendix by flimsy fibrinous adhesions and a mass may form. If the infection is of a fulminant type, suppurative and gangrenous types occur. If it is of a mild type, the oedema subsides, resulting in acute subsiding appendicitis. The healed appendix may be fibrosed and becomes the seat of recurrent obstruction, and infection in most cases. In a few fortunate cases, it atrophies and becomes a fibrous band.

In the obstructive type, the obstruction is of the closed loop type. In the absence of infection, a mucocele results, though this is extremely rare. Infection usually occurs, leading to a distended appendix, filled with pus (empyema). Perforation results, leading to a localised peritonitis and abscess. This may get localised or spread, leading to generalised peritonitis. The complications are paralytic ileus, pelvic abscess and subphrenic abscess.

It would be noted that it is difficult to forecast the progress of a case from the above.

Duration of attack before admission: 50% of our cases came within the first day. The rest came within a period of two to seven days. The management of the cases that came late is necessarily difficult.

History of previous attacks: 30% of our cases gave a history of previous attacks.

Clinical features: A young person, with malaise, headache, and vague abdominal pain in the epigastric or umbilical regions, which eventually settles down in the right iliac fossa, is the classical picture of non-obstructive type of acute appendicitis. The temperature may rise by 1° while the pulse is normal. Tenderness on deep pressure in the Macburny's point is usually present, though rigidity is absent. Nausea or reflex vomiting may be present initially.

In acute obstructive appendicitis, appendicular colic, i. e., sudden intermittent colicky pain around the umbilicus, followed by vomiting, is the feature. In between the attacks, a dull pain is present around the umbilicus. The pulse and temperature may be almost normal. Cessation of pain is indicative either of spontaneous resolution or gangrene and rupture. Rigidity and muscle guarding are relatively late signs. Persistent vomiting is indicative of gangrene.

In acute appendicitis with localised peritonitis, we see a toxic patient with fever and a fast pulse. Tenderness and rigidity in the right iliac fossa with a palpable and movable mass is seen in most cases.

In acute appendicitis with diffuse peritonitis, the patient is critically ill with signs of generalised peritonitis. The lower half of the abdomen is rigid and tender and paralytic ileus sets in early with vomiting. Signs of dehydration are present.

An atypical clinical picture is seen in old people, children, or in people with a retro-caecal, subhepatic or pelvic appendix. In these cases, signs may be minimal or atypical features like diarrhoea, hyperpyrexia and dysuria may be present. In this series, 31% came with an atypical picture. The incidence of various clinical features were as follows: Initial vomiting 75%, tenderness 85%, muscle guarding 6%, constipation 70%, diarrhoea 3%, urinary symptoms 2%, fever 60%, Rovsing's sign 20%, mass 30%, subphrenic abscess 1%, pelvic abscess 2%, post-inflammatory sub-acute intestinal obstruction due to adhesions 5%.

Treatment: The time honoured dictum that "the treatment of acute appendicitis is appendicectomy still holds good, despite the discovery of the powerful anti-biotics, as no one can predict the course of a particular case.

In table II is given the methods of treatment adopted in the series.

44% of these cases were treated expectantly with bed rest and antibiotics with relief of symptoms for the following reasons:

(1) Presence of a well localised mass.
(2) Very low general condition.
(3) Refusal of surgical treatment.

30% of these persons had interval appendicectomy done on them, although all were advised to come back for the same. Many manual labourers refused surgery on the mistaken notion that surgery would prevent them from resuming their previous occupations and had to be treated conservatively.

TABLE II

Type	Conservative treatment	appendicectomy		Drainage	Total
		Macburny	Rt. paramedian		
Acute appendicitis ...	75	40	34	—	149
Acute appendicitis with localised peritonitis ...	4	3	7	7	21
Acute appendicitis with generalised peritonitis ...	2	3	3	2	10
	81	46	44	9	180

The modern trend is to perform immediate appendicectomy, even in cases that come late, in view of the availability of antibiotics[3]. However, we do not agree with this trend as post-operative spilling leads to severe post-operative distension, leading to increased morbidity. Further, the appendix lies in the middle of a mass of coiled intestines and omentum and requires gentle and painstaking dissection. We prefer to wait for eight weeks and do an interval appendicectomy in these cases.

As regards the approach, Macburny's incision is ideal, when the diagnosis is certain, as the interference is minimal. Right paramedian incision is indicated in doubtful cases and in females. In advanced pregnancy complicated with acute appendicitis, the incision is made rather high up and laterally with the patient tilted to the left side.

Morbidity: The overall mortality rate in our series was 1% and occurred in cases that came late with generalised peritonitis. All non-complicated cases recovered.

Discussion: The undermentioned conclusions are drawn from the study of these cases. Acute appendicitis is the most common acute abdominal condition seen in our country. Its incidence is increasing gradually, as more and more people become aware of it, in view of the increasing literacy and living standards. Our series show a predominant affection in the males, as contrasted with other series. The age incidence agrees with those seen in Western countries. The classical clinical picture was seen in 69% of cases only. As the atypical cases form nearly a third of the total, one should not always wait or insist for all the typical signs to make a diagnosis. Further, the previous administration of antibiotics outside, to cases that come late to the hospital, tends to mask the symptoms and confuse the clinical picture. So in these obscure cases, especially in old people and children, it is always safe to operate rather than wait for the complete picture.

Naturally in some of these, the appendix will be normal, the real cause being a nonspecific mesenteric adenitis, Meckel's diverticulitis, Crohn's disease, luteal cyst of the ovary, amoeboma of the caecum and torsion of an ovarian cyst.

The peculiarity noted in this series, is the comparatively large number of cases—44% of the total—treated

conservatively. 92% of these cases were cases of catarrhal or suppurative appendicitis. A follow up of these cases will reveal a high incidence of subsequent recurrent attacks for which surgery is indicated sooner or later. It is also the experience of most surgeons that some of these early cases, who refuse surgery, have a hectic time with peritonitis and later consent for operative treatment. These two reasons, namely the recurrent attacks and unpredictable course, urge us to advocate appendicectomy as a routine for every case. But, if a patient refuses surgery, we do not persist in our advice, but follow the expectant line, knowing its limitations and pit-falls. The general practitioner who comes across a few such cases gains the wrong impression that acute appendicitis can be cured by antibiotics alone. If only he cares to follow such cases, he would realise the dangers of recurrent attacks, and would always advocate surgery early for all cases. An appendicectomy done on the first or second day carries no appreciable mortality, whereas late cases have a difficult post-operative course. In conclusion, we advocate the following rules in the interest of the patient.

(1) All early cases of acute appendicitis, which have not localised, must be operated at once.

(2) All late cases with definite evidence of localisation will be treated conservatively and advised interval appendicectomy after 8 weeks.

(3) All early cases who refuse surgery, and get relief by conservative measures, must be warned of the danger of recurrent attacks for which appendicectomy is the only solution.

Summary : A brief summary of acute appendicitis and its management is attempted embodying the experience gained in a personal series of 180 cases. The need for early surgical treatment in this condition is stressed.

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RECENT ADVANCES IN PHARMACOLOGY AND THERAPEUTICS

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Astonishingly rapid advances have been made in therapeutics and every week, newer and newer methods of treatment are being offered to the practitioner. "The moving finger having writ moves on".

ANTIBIOTICS :

Nowhere in modern therapeutics has progress been more rapid than in antibiotics. New compounds with antibacterial, antifungal and antimalignant effects have been discovered. The antibiotics from the physician's point of view can be divided into the following groups :

(i) Antibiotics suitable for everyday use. (ii) Reserved antibiotics should be used for cases in which they are either indicated as a result of sensitivity tests or in the cases in which the patients do not respond to the first group. (iii) Specialised antibiotics : In this on account of the toxicity or difficulty in administration, they are best suited in the cases in which sensitivity tests have shown them to be more effective against the organisms. (iv) Antifungal antibiotics. (v) Antibiotics used in malignant diseases. (vi) Local antibiotics.

I Antibiotics suitable for everyday uses :

A. Though penicillin still remains the most useful antibiotic, yet many organisms develop resistance to penicillin. This lead to the discovery of new amino-penicillins called Six-Amino-Penicillianic Acid. It is available as BROXYL. The dose recommended is 125 to 250 mgm orally thrice daily. The drug is more quickly absorbed than penicillin V. The second is methicellin (CELEBENIN). It is active against staphylococci which are resistant to Benzyl Penicillin. The third type of penicillin is called PENBRITIN (Beecham Research Lab.). The drug is active against a wide range of grampositive and gramnegative bacteriae. It is well absorbed orally. The dose recommended is 250 mgm 8th hourly. The drug is also effective against haemophilius influenza.

B. Demethyl Chlortetracycline (Ledermycin) : Effective blood concentration of this drug is obtained with a dose as low as 600 mgms per day which is given in two divided doses.

II Reserved antibiotics :

A. *Novobiocin* (Albamycin - Upjohn & Cathomycin – Merck, Sharpe & Dohme.) : is an excellent oral antibiotic of low toxicity and is active against most grampositive organisms, particularly against proteus vulgaris. Dose is 200 mgm every 6 hours. The organisms will develop resistance to Novobiocin, but the drug is worth a trial in staphylococcal infection which does not respond to older antibiotics.

B. *Carbomycin (Magnamycin) :* This is given orally as tablets 4 times daily. Dose : 0·1 and 0·25 grams four times a day. The drug is useful in urinary tract infections and also in multiple abscesses.

Side effects are: Nausea, vomiting and rarely diarrhoea.

III Specialised antibiotics :

A. *Ristocitin* (Spontin - Abbot): This is active against grampositive cocci and in full dosage is bactericidal. The drug has to be given intravenously, as it is a tissue irritant. The dose is 11 mgm per pound of body weight per day. It is a drug of choice in bacterial endocarditis and is continued for 14 days. Regular blood count is to be done, since serious neutropaenia may occur. Eosinophilia may be a dangerous sign. The drug is to be discontinued, if the total count falls below 5,000/c mm.

B. *Paramomycin :* (Humatin-P. D. & Co.) It is an antibiotic given orally in dose of 12·5 mgm per pound of body weight per day. It is effective in intestinal infection as salmonella, dysentery and coliform bacilli. It is a drug of choice in intestinal amoebiasis, especially in acute cases. It is also effective in shigellosis, as well as in Sonne and Flexner infections. The drug is well tolerated in daily doses upto ten days.

C. *Kanamycin* - Kantrex - Bristol : The normal dose is 1 gram daily intramuscularly in two or four divided amounts. The drug is excellent in drug resistant staphylococcal infections. The side effect is auditory damage.

D. *Vancomycin* (Lilly): It is a bactericidal drug. The spectrum covers the gram positive cocci and claustridia. It is given I. V. in 5% glucose drip. The dose is 3 gms daily. The toxic effects are nerve deafness and venous thrombosis.

E. *Neomycin* - Squibb: 0.5 gms: Neomycin 1 gm. 4th. hourly by mouth per day for 1 week in the treatment of hepatocellular failure for sterilising the gut. The oral Neomycin is very effective in decreasing the gastro-intestinal ammonia formation.

IV Antifungal antibiotics :

(A) *Griseofulvin* - (Fulcin - I. C. I. and Grisovin - G. L.): This represents the first systemically administerd antifungal antibiotic effective in the treatment of superficial dermatophytosis. The dosage recommended in the adult is 1 gm. daily in 4 divided doses. • In children the dose is 10 mgm per pound of body weight. I have tried Griseofulvin in the following conditions :

(i) *Tinea Corporis :* Responds well to Griseofulvin with subjective improvement in two days with subsidence of pruritis and is to be continued for 4 weeks.

(ii) *Dermatophytosis - hands and feet :* The drug is to be given in intermittent courses as recurrences are common in this condition. Usual dosage is to be given for 2 weeks, rest for 3 weeks, then repeat 4 such courses.

(iii) *Fungal infections of nails :* This is one of the worst conditions a practitioner can get. The results with Griseofulvin in onychomycosis has been disappointing.

Toxic effects of Griseofulvin :

(a) Gastrointestinal–as nausea, vomiting and diarrhoea.

(b) Skin reactions–as urticaria, erythema, multipruris and lichenplanus-like reactions.

(c) Oral reactions–as black hairy tongue and angular stomatitis.

(d) Neurological reactions – as headache and blurred vision.

(e) Hematopoietic reactions–as leukopenia, granulocytopenia and punctate basophilia.

(B) *Amphotericin B.* (Fungizone - Squibb): It is a new antibiotic given by I. V. drip in doses of 0·25 mgm per kilo of body weight in the management of systemic mycosis as histoplasmosis, blastomycosis, coccidomycosis and systemic moniliasis. The drug may produce fever, chest pain, convulsions, gastroenteritis and exfoliative dermatitis.

(C) *Nystatin* (Mycostatin-Squibb): Moniliasis is treated with nystatin. For oral infection as thrush, use oral nystatin suspension (1 cc - 100,000 units) - 2 cc in the mouth 4 times daily. The solution is to be held in the mouth for sometime before swallowing. The intestinal infection is controlled with 1 or 2 nystatin tablets 4 times a day.

Vaginal moniliasis is treated with vaginal mycostatin tablets 100,000 units per day. Nail and skin infections are treated with nystatin cream applied 4 times daily.

V Antibiotics in malignant diseases:

Actinomycin C is an antibiotic used in chronic lymphatic leukaemia in doses of 200 mcg daily - total dosage being 5000 mcg.

The toxic effects are: Diarrhoea and venous spasm.

Actinomycin - D has produced regression of pulmonary metastasis from Wilm's tumours in children. The usual dosage is 0·015 mgm per kilo of body weight and cases are reported in which toxicity clears.

VI. Local Antibiotics:

(a) *Framycetine* - It is useful in pyodermas and is available for topical application as Sofradex cream (Roussel).

(b) *Bacitracin* - This is derived from bacilus subtilis. It is used topically as ointment in 500 units per gm in cases of pyogenic dermatosis.

(c) *Gramicidin S* - It is a wound antiseptic effective against grampositive and gramnegative organisms.

AUTONOMIC PHARMACOLOGY:

Use of ganglion-blocking agents in hypertension has been known for some years. But unfortunately these drugs are active against both sympathetic and parasympathetic. Hence drugs which are only sympathetic-blocking have been introduced in the treatment of hypertension.

The two new drugs are:

(a) Bretylium Tosylate (Darenthin–B. W.)

(b) Guanethidine (Ismelin - CIBA)

Bretylium Tosylate: It is administered by oral route as tablets of 200 mgm of salt (112 mgm of the base). The tablets are scored in half so that 100 mgm can be given.

The drug has been administered at 8 hour intervals and always before meals, as this facilitates absorption. The drug is commenced in a dosage of 100 mgm thrice daily and is gradually increased to 300 mgm thrice daily and increased further till a demonstrable effect is produced. The dosage has thus varied from 100 to 1800 mgms thrice daily. The adjuvant effect of hydrofluomethazide has been most helpful. The general response can be considered as satisfactory, where without interference with the patient's usual habits of work and leisure, the orthostatic diastolic pressure can be maintained at about 90 mm. of mercury. Further favourable factors are evidence of

regression of ocular and electrocardiographic signs and falling of blood urea.

Side effects :

(a) *Postural hypotension :* Although postural hypotension is the aim of treatment, a reduction of blood pressure that is so sudden and profound causing a disabling cerebral anoxia must be regarded as an untoward side effect.

(b) *Myopathy :* General tiredness is very common and is not simply linked up with the fall of blood pressure. Tiredness is both mental and physical. Extreme fatigue when lifting arms to shave or comb the hairs. Extreme muscular fatigue. The electromyogram shows myopathic pattern.

(c) *Nasal stuffiness :* Stuffiness of the nose and puffiness of the eyes usually occur at 1,800 mgm daily. Reduce the dosage to 1,200 mgm daily and add hydrofluomethazide.

(d) *Parotid pain :* Sharp pain in the parotid area at the onset of mastication and is reduced by continuous eating. It rarely occurs one month after continuous treatment; but is usual 3 months after commencing treatment.

It is due to the spasm of the orifice of the parotid duct with transient obstruction of the salivary flow.

(e) *Gastro-intestinal intolerance :* Treatment is to reduce the dose.

(f) *Disorders of menstruation :* Frequency of menstruation and poor flow occur, but have never been troublesome.

(g) *Failure of ejaculation.*

(h) *Headache :* This is probably due to vasodilatation and is less troublesome than occuring with hydrallazine.

(i) *Shortness of breath :* This is difficult to evaluate, as there is a co-existing left ventricular failure.

Ismelin : This is an effective hypotensive drug. The drug is commenced with 10 mgm. daily and gradually increased to 60 mgm. daily. The day's requirement of the drug is usually given in a single dose just after breakfast.

Side effects : Diarrhoea may occur. Occasionally patients may exhibit a mild pain in the parotid area.

ARYTHMIAS :

Chloroquine has been tried in the treatment of cardiac arythmias. The initial dose is 1 gm. daily, which is increased by 0·25 gm. every 3rd day until termination of the arythmias or gastrointestinal side effects necessitate stoppage. The drug is less toxic than quinidine. The side effects are transient headache, gastrointestinal symptoms and pruritis.

DIURETICS :

The newer diuretics belong to Benzthiadiazine group.

The toxic effects of this group of drugs include-photosensitisation, skin rashes, and allergic manifestations including purpura and agranulocytosis. Blood uric acid may be raised and attacks of gout precipitated; occasionally diabetes mellitus may be aggravated or, where latent, become manifest in susceptible patients. In patients with extreme impairment of liver function, hepatic coma may be precipitated. The newer ones in this group are: Hydrofluomethazide (Naclex - G. L. or Saluron - Bristol) 50 to 100 mgm. given 12 hourly. Bendrofluazide (Neo-Naclex-G. L.) 5 to 10 mgm. every 24 hours.

Chlorothalidone - 100 to 200 mgm. once in 72 hours. The other derivatives are: Trichlormethazide (Naque-Schering) 4 mgm. tablets and Benzyl Benzedromethiazide (Naturetin - Squibb) 2·5 mgm. tablets. These drugs act on the renal tubules and inhibit the absorption of sodium and chloride and to a lesser extent potassium and bicarbonate.

Spironolactone (Aldactone - Searle Lab.) is available in 100 mgm. tablets and is especially useful in hepatic dropsy.

DERMATOLOGY:

Psoriasis: This remains one of the major problems in dermatology. The most recent treatment is the use of Methot-rexate in the treatment of psoriasis. Dose is 2·5 to 5 mgm. daily in children and 5 to 10 mgm. in adults. The drug produces serious toxic manifestations as diarrhoea, gastro-intestinal haemorrhage and pancytopenia.

Dr. Keston has tried oral administration of soyabean lecithin in dose of 30 gms. per day. This contains equal quantities of lecithin, inositol, phosphatid and cephalin.

In psoriasis there is an increase in the free sulphhydryl groups. Triamcinolone which increases the excretion of sulphhydryl groups has been tried in many cases.

Newer dermatological methods for using corticosteroids more efficaciously: It is probable that the therapy in skin diseases is more complex and requires more patience and versatility than does the therapy of the diseases of other organs.

I. **Topical Corticosteroid Therapy:**

(a) *Occlusive dressing:* For the treatment of resistant flakes of psoriasis, contact dermatitis, hypertropic lichenplanus and chronic recalcitrant pustular eruptions of palms and soles, we often prescribe a corticosteroid ointment. But the best procedure is not only to rub the ointment, but cover with occlusive plastic film and an outer dressing. Gauze wrappings may be used. For the hands and fingers plastic or polyethylene gloves are used. For body areas, dispersible diapers are useful. Dramatic results are obtained by occlusive dressings than by mere dressings. Kenalog ointment or Ledercort Acetonamide ointment can be used.

(b) *Local intra-lesional application of corticosteroid:* Hydrocortisone acetas, 1% or 2·5% solution and prednisolone acetas 2·5% solution may be given intradermally in cases of alopecia areata. The amount of material required depends on the site to be treated. The frequency of injections varies according to the disease. For alopecia areata, I give a single injection and repeat after 6 weeks. Chronic hypertrophic lichen planus responds well with intralesional corticosteroids. Other conditions that are benefited are chronic discoid lupus erythematosus and lichen simplex chronicus.

(c) *Hydrocortisone iontophoresis* is a useful measure in the treatment of extensive alopecia areata. The usual dose being 25 mgm. per c. c. of water and is connected to a galvanic current and given 2 M. A. at weekly intervals for 2 months.

II. **Systemic Corticosteroid Therapy:**

This is useful in: (i) Cases in which life is in danger as in pemphigus, acute

systemic lupus erythematosus, acute drug reactions, anaphylactoid purpura and Steven Johnson's syndrome.

(ii) Cases with severe acute dermatosis expected to be of short duration : Acute lichen planus, contact dermatitis and drug reaction.

(iii) Benign chronic disabling disorders : Neurodermatitis, disseminated alopecia totalis and psoriasis.

The doseage of corticosteroids, which I recommend, is daily 150 mgm. of cortisone which is equipotent to 30 mgms. of prednisolone, 24 mgm. of triamcinolone and 3 mgm. of dexamethasone. It is imperative that every patient receiving systemic steroids to be in possession of a steroid card, and should show this to his doctor periodically. Gradual tailing off is *sine qua non.*

DISORDERS OF PIGMENTATION :

Hyperpigmentary disorders : Freckles or ephelis are common pigmented macules which are frequently grouped and rarely scattered over the body. The best external application is monobenzyl ether of hydroquinine (Binoquine-Elder Lab). It is advisable to commence with 5% strength and gradually increase it to 20% strength. The common freckle cream eontains bismuth subnitras in calamine cream.

Hypopigmentation - Vitiligo : This is treated with the use of Ammi Majus. This contains Ammoidin, Ammidine and Imperatorin. Ammoidin initiates pigmentation, Ammidin prevents formation of new pigment and Imperatorin fixes the pigment. The drug is available as a solution as well as a tablet. The solution is well diluted and exposed to U. V. R. Systemic administration consists in using 20 mgm. at 1 P. M. and expose to sunlight at 3–30 P. M. starting with 15 minutes and increasing 5 minutes every 4th day until 30 minutes is reached.

TREATMENT OF ACNE VULGARIS :

The treatment is multiphasic. They are :

1. *Treatment of follicular plugging :* For this soaps containing hexa-chlorophyl or the use of equal parts of acetone and alcohol. If there is inflammatory papulopustular lesions, Vleminex solution can be used.

2. *Treatment of acne-genic stimuli :* Certain foods and drugs are acnegenic. Avoid nuts, chocolates, cheese, iodides and bromides and probanthine. It is known that a pre-requisite for development of acne is testosterone in men and progesterone in women. The severity of acne can often be diminished by Premarin 0.625 mgm tablets per day for two weeks preceding menstruation. The combination of oestrogens and chlorothiazide is superior to oestrogens alone for premenstrual exacerbation of acne. Young men having incapacitating cystic acne are benefited by injections of 0.5 mgm of stilboesterol for two weeks each month and for no more than five courses.

3. *Treatment of infections and inflammatory conditions in acne :* I prescribe 250 mgm of tetracycline or synermycin — 1 capsule every 12 hours for 2 weeks.

4. *Treatment of post-acne scar :* Recently mechanical abrasion of acne scar has been introduced. An abrasive paste containing aluminium particles is available as Brasivol (Steifel).

ORAL HYPOGLYCEMIC DRUGS :

Three important drugs have to be considered in this group.

(1) Tolbutamide. (2) Chloropropamide (Diabenese). (3) Diguanides—Phenformin (D. B. I.) and Metformin.

Tolbutamide: Dose is 0.5 gm to 2 gm given in two doses daily. The side rections are rare and not severe. They are:

(a)	Dermatologic	: Urticaria
(b)	Gastrointestinal	: Nausea, vomiting, diarrhoea
(c)	Haematological	: Leucopenia.

Chlorpropamide (Diabenese): The dose is 0.1 gm to 0.5 gm. once daily. The side effects are: (a) Gastro-intestinal (b) Urticarial rashes (c) Mild neurological symptoms (d) Cholestatic jaundice.

The two diguanides are phenformin and metformin.

Dose:	Phenformin	- 50 to 70 mgm daily.
	Metformin	- 0.5 to 1.5 gm daily.

Gastrointestinal symptoms may occur. Some cases show a tendency to ketosis and ketonuria.

While giving oral hypoglycemic drugs, it is better to reduce insulin dosage by half and then give small doses of oral hypoglycemic drugs. Reduce gradually the insulin and replace by oral hypoglycemic drugs.

NEW DRUGS FOR TROPICAL DISEASES:

Amoebiasis: It has been a problem to treat amoebic cysts. Till now E. B. I. was used. Now it has been shown that Diloxanide Furoate (Entamide-Boots or Entobex-Ciba) is useful in doses of 20 mgm per kilo of body weight to be given for 10 days.

Malaria: For chemo-prophylaxis it is advisable to use a combination of chloroquin and chlorproguonil (Lapaquin)—one tablet once weekly.

Leishmaniasis: For Kalazar, the pentavalent antimony compound, sodium stilbagluconate (Pentostam) is given in dose of 6 ml. I. M. for 10 injections.

Bacillary dysentery: Sulfadimethoxine 0.5 mgm thrice daily for 7 days is useful. It is well tolerated. There are no side effects.

Leprosy: Two new drugs have been introduced.

(a) Thiambutozine or Ciba 1906 or DPT. Dose 2 gm. daily.

(b) Ditophol or Etisul cream 5 gm. (6 ml.) daily inunction.

Taeniasis: Antiphen-Dichlorophen is given in doses of 0·5 gm. daily for twelve days or a single dose 6 gm. administered without laxatives.

Strongyloidiasis: Dithiazinine iodide (Telmid) is given orally in tablets of of 200 mgm, 2 tablets 4 times daily for 5 days for stronglyloids, whipworms and threadworms.

Hookworm: A single dose of 3 gm. of bephenium hydroxynaphoate (Alcopar–B. W.) given suspended in water after 6 hours of preliminary starvation has proved effective. No subsequent purgation is essential.

TREATMENT OF HEPATIC COMA:

This syndrome may complicate liver diseases of all types. The essentially reversible nature of the cerebral disturbance and the diffuse involvement of the brain suggest that changes are metabolic.

There are three phases in hepatic coma:

(a) A stage of characteristic mentation.

(b) A stage of stupor.

(c) A stage of coma.

Pathology and pathogenesis: The hepatic coma is a form of cerebral intoxication. The nitrogenous material from the bowel byepass the liver and proceed to the cerebrum.

How does ammonia affect the central nervous system:

1. Ammonia interferes with the Kreb's citric acid cycle by removing alpha-keto-glutarate.

2. Ammonia moves freely from an alkaline to an acid medium; it moves intracellularly where it presumably exerts its effect by alkalosis.

3. Electrolyte depletion is a factor of ammonia intoxication. In this there is potassium depletion which produces intracellular acidosis and which favours intracellular accumulation of ammonia.

4. Hypoglycemia does occur in hepatic coma.

Management of hepatic coma:

1. Restriction of proteins and its removal by purgation.

2. Antibiotics: Neomycin 1 gm. 4th hourly by mouth alters the intestinal flora and decreases the gastrointestinal ammonia formation.

3. Control of gastro-intestinal bleeding by sengstaken tube.

4. Intravenous cocktail with glucose and B complex; potassium chloride is added to the intravenous cocktail.

5. Glutamic acid lowers blood ammonia; glutamic acid combines with ammonia to form glutamine. Dose: 100 gms. daily.

6. Corticosteroids are very helpful in the fulminant types of hepatic coma. They produce a dramatic fall in serum bilirubin and show beneficial effects in hepatitis as seen by serial liver biopsies.

CHEMOTHERAPY IN MALIGNANCY:

Leukaemia: Acute leukaemia shows remission with corticosteroids causing clinical and hematological improvement.

The anti-metabolites of choice are:

1. Methotrexate — Dose:
   Children - 2·5 to 5 mgm per day.
   Adults - 5 to 10 mgm per day.
2. Purine ethol: Dose 2·5 mgms per kilo of body weight per day.

The side effects with methotrexate are: Stomatitis, diarrhoea, gastro-intestinal bleeding and pancytopaenia. Prompt discontinuation of this drug with administration of leukovorin calcium is helpful. Purineethol is less toxic.

For chronic leukaemias, various drugs are available. For chronic lymphatic leukaemia, Leukarin (Chlorambucil—B.W.) 2 mgm tablets are given daily. The other drug used is cytotoxon (Cyclophosphamide).

This has been tested against acute and chronic leukemias and various tumours. The dose recommended is 4 mgm. per kilo of body weight. Periodic vacations from drugs are advisable after a prolonged period of treatment. 1961 LANCET mentions the use of Vincaleucoblastine 10 mgm. in 10 cc. of water for intravenous use for three or four injections in cases of leukemias and also lymphosarcomas with beneficial effect. For chronic myelogenous leukemia, purine ethol (six-mercopto-purine-B. W.) is given 50 mgm. per day. The other drug is Busulphon or Myleron (B. W.) 10 mgm. daily until remission is produced.

Tretamine (I. C. I.) has been tried in inoperable lung cancer in single dose of 25 mgm. I. V. There has been subjective improvement with severe

nausea for 24 hours. The shrinkage of the tumour mass is noticed in three days and continued over three weeks. For the severe nausea, pyridoxine 100 mgm. I. M. and Dramamine 6th hourly have been given.

TRANQUILLISERS :

These are drugs which produce sedation without hypnosis.

The newer tranquillisers are :—

A. *Major tranquillisers :—*

(a) Phenothiazine group :

(i) Promazine or Sparine (Wyeth) Dose : 25 to 50 mgm. per day.

Triflupromazine (Siquil) 10 mgm. and 25 mgm. doses. Vallergan and Eskazine come under the same group.

(ii) Thioridizine (Melleril-Sandoz)- 10 mgm. and 25 mgm doses.

(b) Rawolfia group :

(i) Hormonyl - Abbott (Deserpidine) available as ungrooved 0·1 mgm. and grooved 0·25 mgm. tablets.

(ii) Moderil tablets (Pfizer-Rescinamine).

B. *Minor tranquillisers :*

(a) Alkaneidol group :— Ultran - Lilly - Phenaglycodal is available in 300 mgm. pulvules and 200 mgm. diskets.

(b) Diphenyl methane group :— Hydroxyzine (Atarax) - available as 10 mgm. and 25 mgm. tablets, as well as ampoules.

(c) Benactazine (Suavitil or Nutinal-Boots) 1 mgm. tablets.

(d) Azocyclonal (Franquel - Merrel) 20 mgm. tablets.

The major tranquillisers are useful for severely ill patients as well as excited patients and for generalised neurodermatosis. Many of them, after prolonged use, will cause reversible Parkinsonian syndrome. The minor tranquillisers are useful in psychoneurotic problems and in common nervous tension. In my experience, Atarax is the least toxic of the group.

Newer sedative group of drugs - The new nonbarbiturate sedatives are :— (1) Methylparaphynol (Dormison - Schering) Dose : 0·25 mgm. Side effects : Gastrointestinal disturbance. (2) Ethinamate (Valimid - Lilly) Dose : 0·5 gm. Evokes sleep in 20 minutes and action lasts for 4 hours. (3) Glutethamide (Doriden - Ciba) Dose : 0·5 gm. Produces hang over effect.

(4) Ethyl chlorvynol (Placidyl - Abbott) Dose : 0·5 gm. It is a good and effective drug.

(5) Methylpyrlon (Noludar - Roche) Dose : 0·2 gm. Side effects : Vertigo, nausea and skin rashes.

DEPRESSION :

Diagnosis and treatment : In Roget's Thesarus, there is roughly twice as long an entry for dejection as there is for cheerfulness and about the same ratio for lamentation and rejoicing. In depression there is a feeling of sadness, a slowing of intellectual powers and psychomotor retardation.

The treatment of depression is under four headings :

(1) Psychotherapy.
(2) Management of the family.
(3) General regimen.
(4) Psychoactivating drug.

The drugs are classified as :

(a) Psychic energisers.
(b) Other antidepressants.

(a) *Psychic energisers :*

(i) Iproniazide (Marsalid : Roehe) 50 mgm. thrice daily. Side effects: Jaundice, paranoid symptoms and hypotension.

(ii) Nardil-Phenelzine (Warner & Co.) 15 mgm. thrice daily.

(iii) Nialamide (Niamid - Pfizer's) 100 mgm. thrice daily. Toxic effects are minimal.

(iv) Marplan (Roche - Isocarbox-acid) 10 mgm. thrice daily.

(b) *Other antidepressants :*

(i) Impyramine (Tofranil - Geigy) 25 mgm. thrice daily. Side effects are: Dry mouth, dizziness and tachycardia.

(ii) Piperidal (Ritalin - CIBA) It produces disturbances of sleep and is a useful drug for mild depression.

(iii) Deanol (Rikot Lab.) tablets of 25 mgm. Increases the intelligence quotient.

TREATMENT OF THYROTOXICOSIS :

The medical treatment of thyro-toxicosis consists in the use of two drugs: (1) Carbimazole (2) Potassium perchlorate.

(i) The dose of carbimazole is initially 10 mgm. 8th hourly and later, after 4 weeks, the dose is halved and brought to a maintenance dose of 5 to 10 mgm. per day. At the end of a year the need for further treatment will be reviewed.

(ii) Potassium perchlorate - The initial treatment consists of 1000 mgm per day in 4 divided doses and 3 weeks later a maintenance dose of 200 mgm. daily should be given.

RECENT ADVANCES IN THE MEDICAL TREATMENT OF PEPTIC ULCER :

In August 1960, Dr. True Love published results of a carefully designed experiment in the therapeutics of duodenal ulcer in men. The three possibly useful agents were simultaneously compared. They were : (a) Diet, (b) Phenobarbitone and (c) Stilboesterol.

Six months of unbroken treatment with assessment both clinically and radiologically, at the end of the period and 5 years later, were followed. The work has shown that with one exception all the cases treated were radiologically healed at the end of 6 months and remained healed for the ensuing 5 years. It is not yet known how stilboesterol exerts its action. Possibly it improves the healing capacity and resistance of the mucosa. Treatment with stilboesterol is far from ideal, as the other normal effects of oestrogens appear in most cases, but it is possible that related substances already exist or may be synthesised before long in which the effect of ulcer healing is retained and the feminising action minimised.

TREATMENT OF NEPHROTC SYNDROME :

The rapid appearance of generalised oedema with heavy albuminuria, hypoproteinaemia with normal blood pressure and normal blood urea are the features in nephrosis. Corticosteroids have a useful place in nephrosis. The mode of action of steroid therapy is explained as follows : The cause of diuresis is certainly not due to a rise in the serum-albumin level. There is water diuresis with release of sodium and chloride and this has been explained as due to a depression of endogenous aldosterone and A. D. H. hormone. The reduction in proteinurea is significant, but difficult to explain. The second explanation for the action of steroids in nephrotic syndrome is as follows:

In the nephrotic syndrome, there is an antigen - antibody reaction, steroid therapy interferes with the immunological process and protects the basement membrane and the glomerulus from further damage. Thus steroid therapy works as an umbrella protecting the kidney.

Principles of treatment are:

1. Salt poor albumin.

2. Steroid: Prednisolone 60 mgm. daily initially and tailing to 20 mgm. daily for 1 month and gradually reduced further to a peroid of three months.

3. Diuretic treatment: Chlorothiazide 2 gm. daily with supplementary potassium. Aldactone may prove of value.

4. Antibiotics: Bacterial infection before and during infection is to be treated with appropriate antibiotic therapy.

Before concluding, it must be recognised that there are many recent trends in pharmacology and therapeutics which become a problem to the practitioner, as he has to keep himself abreast with the latest drugs and the pharmaceutical industry has produced so many drugs that at times we are left in a quandry. It is *sine qua non* that a book must be published every year containing the pharmacological names and their patent names with dosage, side effects and limitations for the use of the drugs. This will be a solution for the general practitioner.

AMUSING MINUTES

The following advertisement appeared in a physical culture magazine: " Here's a good test for your stomach muscles. Clasp your hands over your head and place your feet together on the floor. New bend to the right at the waist as you sit down to the left of your feet. Now by sheer muscular control, haul yourself up, bend to the left and sit down on the floor to the right of your feet. Keep this up and let us know the result".

The first letter received said "HERNIA".

* * * * *

An obstetrician admitted a young primipara into the local hospital as she told him she was in labour. After drapping her properly he made a vaginal examination, and while his finger was still in the vagina, he said to the nurse, " She is not dilated. In fact, she is not even engaged".

The patient suddenly rose up and said, "I am engaged, and, what is more, I am going to get married".

The obstetrician withdrew from the room without comment.

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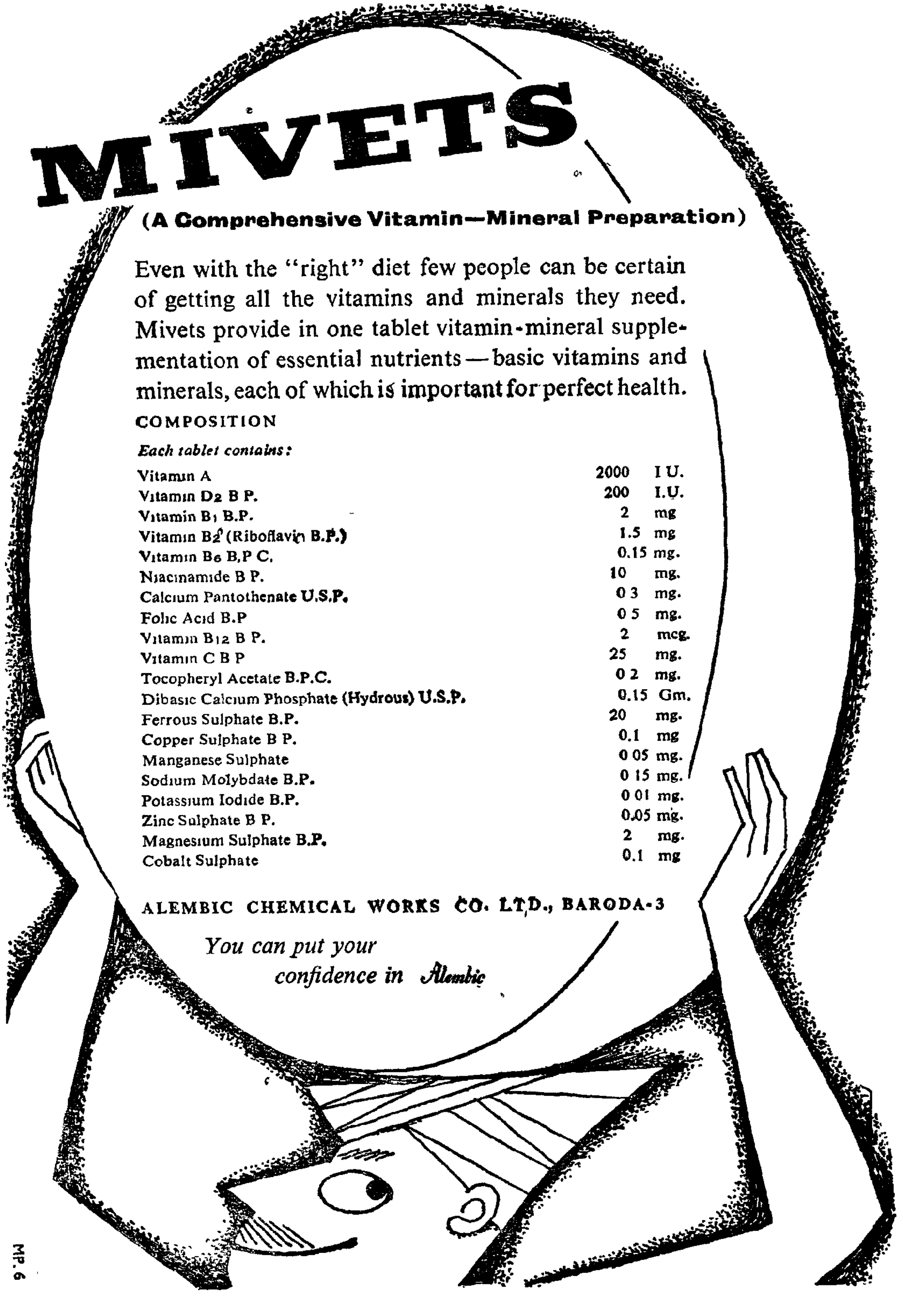
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MODERN METHODS OF BIRTH CONTROL

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In 1956 an interesting booklet appeared under the aegis of the Family Planning Board appointed by the Government of Madras. Although it had a high sounding name "Family Planning Manual", it was in fact a very useful booklet for the lay person and it contained a good deal of common sense and practical type of information for the layman. This was but natural considering that a great deal of care and thought had been devoted to its production which was guided by one devoted to its ideals and who was firmly convinced personally of the very great national importance of family planning, namely Shri R. A. Gopalaswami. In a foreward, the then Minister for Health, Shri A. B. Shetty wrote, "The practice of family planning is a duty which every husband owes to his wife, to safeguard her health. It is a duty which both owe to their children, to promote their health and welfare. Whether you do or fail to do your duty is not merely a matter of concern to you and your children. It is a matter of vital concern to that larger family to which all belong —The Indian Nation".

There would be little purpose in repeating some of the things which are satisfactorily explained in the booklet, but it is my object to discuss briefly certain methods of birth control and to dwell particularly on the more modern methods which are coming into vogue. Of the various methods that may be employed, coitus interruptus, post-coital douche and intra-uterine rings and stems have not gained medical approval.

Coitus interruptus, or withdrawal before emission, the most primitive method of birth control (also often spoken of as the husband - careful method) is still extensively practised because it is simple and practical. It is unsafe as it does not protect against uncontrollable premature emission. Besides, active spermatozoa are frequently present in the pre - ejaculatory penile secretions. Because of the woman's inability to obtain satisfaction (orgasm) after the exit of the penis, many couples find this method sexually unsatisfactory. Should a re - entry be effected to give satisfaction to the female partner, there is a danger of introducing sperms into the vagina. However, it is the general impression in our country that this method would not have been used by so many for so long unless it were effective to a large measure. In a poor country such as ours where people cannot afford costly contraceptive devices it must still prevail.

Post - coital douche, even if performed almost immediately after intercourse, is a highly unreliable method of contraception as the spermatozoa travel very rapidly, When a vaginal douche is being taken, the sperms may already have entered the safety of the cervical canal.

Intra-uterine devices of various sorts (rings, stems, etc.) have been tried out in the past, but are generally to be condemned. They cause irritation and infection. They are ineffective and some believe that they may even display carcinogenic potentialities. It is also widely thought that both intra-uterine pessaries and cervical stem pessaries function by virtue of favouring abortion soon after the egg implants.

Among the methods of contraception which are medically approved may be included the condom, diaphragm, cervical cap, cream or jelly suppositories, and the rhythm method. The condom or sheath is readily available and is easy to use. It is, therefore, a very popular method of contraception. If used skilfully it is relatively effective, but one should be certain that the device is made of good material and that there is no leak or rupture. It is generally thought that sheaths do not keep well in tropical climates, but it is established that, although their life may not be as long, they are doubtless effective. The disadvantages of the condom method include, 1. dulling of sensation, 2. the penis remaining in the vagina after ejaculation makes possible a leakage of the semen around the condom as erection subsides, and 3. starting intercourse without the condom with an expectation of withdrawal before ejaculation, then putting on the condom and reinserting it, is unsafe because of possible leakage of semen in the first stage.

The diaphragm is quite a reliable method, provided the woman is intelligent and is initiated in its proper use. The diaphragm must be of correct size and should fit properly and be worn before sex play and penetration, and should preferably be coated with a spermatocidal jelly. Several years ago, I visited the London clinic of the late Dr. Marie Stopes and she used to emphasize what an important responsibility lay with the gynaecologist to teach the woman to use the diaphragm properly. Improper use of the diaphragm readily brings it into discredit for no fault of the method. The diaphragm method is expensive and it is not always that a doctor may be at hand to instruct the poor Indian woman in its use; nor may they readily command the privacy which is required for its use.

The use of vaginal suppositories and contraceptive jellies to destroy or immobilize the sperms offer some measure of protection, but are far from reliable or perfect. Occasionally the so called foaming tablets may not foam and so be ineffective and on the whole the jellies would seem to be better; all these methods require privacy for their use.

The rhythm method seems to be an ancient but well practiced method. Although Knaus, an Austrian gynæcologist and Ogino, a Japanese gynæcologist are considered to be the originators of the theory that women can conceive only on some days of the menstrual cycle, it would seem that the ancient Indian knew accurately about the fertile days of women. In his "Fundamentals of Indian — Aryan Philology and History" published way back in 1901, Jolly wrote that "rtu", the period at which conception is likeliest, comprises the sixteen days from the onset of the menstrual flow, from which, however, the four days of the menstruation must be subtracted, as well as a further four days. The original reports were contained in

the ancient statute books Madhavanidani (compiled in the eighth century, republished in 1876). According to Astangasamgraha "fine sons will be conceived" if the waiting period of four days is observed. The actual fertile days last therefore from the 9th to the 16th day after the onset of menstruation. This finding is almost identical with the results of Knaus and Ogino, who consider the fertile period to last from the 10th to the 16th day. The female is fertile only at the time of ovulation, eg. the 14th day of a 28 day cycle. By allowing three to four days on either side of this date, a period of possible conception is established. The remaining days of her cycle including menstruation, can then be considered the "safe period". This method of contraception is based on the presumption that the time of ovulation is constant and predictable for each individual. Because of individual variations, this method of contraception cannot be regarded as fool-proof and perhaps it may be safer to combine it with coitus interruptus. Methods of diagnosing the precise time of ovulation by intravaginal test-tape observations and the recording of basal body temperature have not proved to be of practical value. Dubrow and Guttmacher (1959) state, "If there were an infallible, simple and effortless method to pinpoint the hour of ovulation and if one could make sure that the patient in question never ovulated more than once a month, the rhythm method would immediately become the world's ideal contraceptive".

There are various experimental methods of contraception. Of these non-foaming and foaming vaginal tablets have been tried out and they evidently give some measure of protection although they are not reliable. Several oral tablets have been tried out with indifferent results; perhaps the advent of the new progestational steroids has been the most encouraging development so far. The progestational steroids inhibit ovulation and extensive trials have been made with some of these substances as oral contraceptives. The following oral compounds have been widely used: (a) 17-ethinyl-estrasnolone (Enovid : Searle); (b) 17-ethinyl-19-nor-testosterone (Norlutin : Parke-Davis); (c) 17-ethyl-nor-testosterone (Nilevar : Searle).

These highly potent steroids are taken by mouth once daily for 20 days starting on the fifth day of the cycle. Seventy-two hours after they are discontinued, withdrawal bleeding occurs. Extensive trials have already been made and it would now appear that the emergence of the new progestational compounds is the beginning of the discovery of the perfect oral contraceptive and this in turn cannot but be of major significance for countries like India which are confronted with population control problems of formidable proportions.

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ABSTRACTS AND EXCERPTS

PREVENTIVE EFFECTS OF ISONIAZID IN THE TREATMENT OF PRIMARY TUBERCULOSIS IN CHILDREN:

The United States Public Health Service, in co-operation with pediatricians throughout the country, has completed three years of observation on 2750 children in a controlled clinical trial to test whether isoniazid could prevent meningitis and other complications in children with primary tuberculosis. All children were kept under close supervision, and for 1394, isoniazid in a daily dose of 4 to 6 mg. per kilogram of body weight was added for one year. The remaining 1356 children received an equivalent daily dose of placebo pills. Children were assigned medication by a system of random allocation to provide similar groups for observation and to ensure that neither the physician nor the parent knew which medication a child was receiving. If any signs or symptoms of progressive disease or a complication developed, the physician was free to start specific treatment.

A high proportion of children with primary tuberculosis can be motivated to take pills regularly for one year: nearly 75 per cent took them for the entire year, and over 90 per cent for at least six months.

Isoniazid in the dose used is safe for prolonged administration: only two children showed mild intolerance.

This drug probably reduces the occurrence of adverse pulmonary changes in children with primary tuberculosis: such changes were observed during the year of medication in 36 children given isoniazid and in 52 given placebo.

Isoniazid defintely prevents extrapulmonary complications: during the year of medication, 2 definite and 4 doubtful complications were observed among children assigned isoniazid, in contrast to 31 definite and 2 doubtful among those assigned placebo. No incipient complications became clinically manifest among the former, but 6 appeared among the latter.

The risk of complications increases with the extent of initial roentgenographic involvement and decreases with age.

— *The New England Journal of Medicine - Vol 265 - No. 15 - page 721 - October 12, 1961.*

* * * *

THE PRESENT STATUS OF THE SULPHONAMIDES:

Sulphonamide-antibiotic combinations: Weinstein and his associates have shown that the emergence of resistance of some bacteria to antibiotics can be suppressed by the addition of sulphonamides; for example, they found streptomycin plus sulphadiazine or sulphafurazole better against *H. influenzae* meningitis than the antibiotic alone. The microorganism should initially be sensitive to both agents. Other endemic strains of this

organism have been found to respond excellently to a sulphonamide-chloramphenicol routine. Bigger adduced evidence of a synergistic effect from sulphonamide-penicillin combinations, but as a rule combinations with bacteriostatic antibiotics, particularly the tetracyclines, are unhelpful. There is no evidence in favour of sulphonamide-antiserum combinations. Many other examples of the utility of sulphonamide-antibiotic combinations may be cited from current therapeutics. Penicillin-sulphonamide treatment is routine in some countries for gonococcal infections, as well as pneumococcal infections, particularly meningitis.

In summary, the principles governing sulphonamide administration may be recapitulated thus :—

Therapy should rarely extend over more than 7 to 10 days. If in acute illness a good response is not evident after 3 days' full treatment, eventual success is unlikely and the case should be carefully reconsidered.

Fluid intake must be adequate: 4 to 6 pints daily for adults. Double these amounts must be ensured in tropical climates.

An alakaline supplement (sodium citrate or bicarbonate 1 to 2 g.) should accompany each dose of the sulphonamide.

The urinary output must be watched and a test for albumen made daily. The leucocyte count should be checked regularly when liberal or prolonged dosage is being given.

— *T. H. Crozier,* M. D., F. R. C. P., D. P. H.,
Practitioner **186**, *123 — 131. (1961).*

* * * *

TUBERCULOUS MENINGITIS:

A Review of Fifty One Cases in Madras.

Fifty one patients aged 10 years or over were admitted to a hospital in Madras between September 1957 and December 1959. The criteria of diagnosis were clinical evidence of meningitis, positive cytological and biochemical findings in the cerebrospinal fluid and the absence of any other pathogenic organisms in smears and cultures of the fluid. The diagnostic demonstration of acid - fast bacilli in the fluid was not attempted often owing to the absence of adequate facilities.

Of the fifty one patients, 29 were males and 22 females; 42 were under 40 years old, 9 were over 40. 23 patients (4 deaths) were in stage I, i. e., with little or no clinical signs of meningitis and the diagnosis established mainly by the abnormal fluid; 4 (1 death) were in stage II, i. e., between stage I and stage III; and 24 (13 deaths) were in stage III, i. e., extremely ill, deeply comatose, with gross paresis. The duration of illness before diagnosis did not seem to be closely correlated with the stage of the disease on admission.

Forty four patients were examined thoroughly for evidence of other tuberculosis. Miliary disease was found in 3, active pulmonary tuberculosis in 4 and tuberculous otitis media in 1. 34 patients (66 6%) had disturbance of higher cerebral function. Those admitted in deep coma fared worse than others. 14 patients showed evidence of cranial nerve palsy, most commonly involving the oculo-motor nerve. 12 had some form of other motor paralysis.

At the beginning, convulsions were seen in 10 (19·6%) of whom 5 died, 4 recovered completely, and 1 has been put on long term anticonvulsant drugs. Headache was present in all conscious patients and was one of the earliest symptoms. Photophobia was common, but very few patients complained of vomiting.

Meningism was present in 40 of 50 patients specially examined for it. Choroidal tubercules were not seen in the 28 patients examined for them. The authors mention that ability to detect such tubercules probably varies with experience.

The protein content of the cerebrospinal fluid was found to be directly proportional to the severity of the disease. The chloride and sugar contents were low. Acid-fast bacilli were seen in the fluid of 3 of the 10 examined intensively. 4 of 7 patients tested (Mantoux 100 TU of OT) were found to be reactors.

The patients were selected for 3 main types of treatment according to their condition. The regimes were:

(1) Intramuscular streptomycin, oral isoniazid and intravenous (later oral) PAS.
(2) The same plus corticosteroids.
(3) Regime 2 plus intrathecal streptomycin.

The results were:

	Stage I.		Stage III	
	Total.	Deaths.	Total.	Deaths.
Group 1	9	0	13	7 (54%)
Group 2	7	2	6	5 (83%)
Group 3	7	2	5	1 (20%)

There was 1 death in the 4 patients in stage II.

A follow-up of the 34 survivors was attempted but only 8 attended. One had had 2 relapses, one was mentally deranged but showed no evidence of activity of the disease. His mental condition became normal after the withdrawal of isoniazid; one had bilateral nerve deafness and ataxia and 5 were well.

Arjundas, G. and Subramaniam, R. (1961) *Tubercle.* **42,** 187—94. 1961.

From Bulletin of Hygiene.

TETANUS IN DEVELOPING AND DEVELOPED COUNTRIES:

A feature of the reports from many countries is the emphasis laid on tetanus as a public health problem: approximately 1000 cases of tetanus are admitted annually to hospitals in Ceylon, while pilot studies carried out in one part of rural India indicated that tetanus was one of the 10 major causes of morbidity in that area. Again, neonatal tetanus has been shown to occur in over 1% of births following confinement at home in Dakar area of Senegal, and it accounts for 20-80% of the deaths from tetanus at all ages in a number of countries. In countries were tetanus is a public health menace, active immunization begun in early childhood and maintained by booster doses on entering and leaving school would seem the obvious answer. Tetanus toxoid is a potent and cheap antigen, which can be used in combination with other prophylactics such as diphtheria toxoid, pertussis vaccine, or typhoid vaccine.

The problem of neonatal tetanus presents some practical difficulties. Again the obvious answer would seem to be to immunize the pregnant woman so that the baby is born with an adequate amount of antitoxin to protect it against neonatal infection. There seems little doubt that, if this could be done, the problem of neonatal tetanus could be solved, although controlled trials to test the validity of this assumption need to be carried out. The practical difficulty is that a great part of neonatal tetanus occurs following child birth at home where there has been no antental supervision of the pregnant woman. It would obviously be difficult to arrange for these women to have active immunization during pregnancy. The alternative solution of administering tetanus antitoxin to the baby at birth (as is now being done in Dakar) also presents practical difficulties. It seems that extension of maternity nursing care may be the eventual answer.

In many communities, the current prophylactic procedure against tetanus among civilians suffering injury is a dose of tetanus antitoxin that will give protection for a few weeks. The main objections to this method of control are: (a) the considerable cost of the antitoxin and the many thousands of cases of serum sickness that still occur after its use (in addition, in rare cases death from acute anaphylactic shock may follow injection of antitoxin); (b) the patient who has already had an injection of antitoxin and requires a second dose within a period of, say 1-2 years, will eliminate the second dose of antitoxin very quickly, so that it ceases to have any protective value (such a patient is also more likely to have an anaphylactic reaction); (c) considerable proportion of clinical cases of tetanus follow mild injury when the patient has not been seen by a doctor.

There is, therefore, increasing support in these countries for active immunization against tetanus on a national scale. Experience with this form of immunization among troops on active service during the second world war demonstrated how effective it was as a prophylactic against tetanus, the incidence being reduced to less than 0·1 per 1000 wounded·

Any individual who has had a course of active immunization and suffers injury requiring anti-tetanus treatment is given a further booster dose of tetanus toxoid.

— *R. Cruickshank*, M.D., F.R.C.P., D.P.H., "*Immunization in Communicable Disease Control*"—*World Health Organization.*

* * * *

INFECTIVE HEPATITIS:

It is humiliating to realise that, despite technical advances, there are still diseases of presumed viral origin in which the causal organisms have not been isolated and characterised. Prominent among these have been infective hepatitis and serum jundice.

That the cause of infective hepatitis is viral was suggested by Findlay *et al* in 1939. This hypothesis was much strengthened by a series of studies in which volunteers were infected with material derived from patients. This work established, (a) that infectivity resides in the serum during the preicteric stage, (b) that the infective agent is moderately heat-resistant and passes bacteria-tight filters, and (c) that infective hepatitis and serum jaundice each has a distinct and characteristic incubation period. Attempts to isolate a causal virus in the laboratory have involved trials in many animal species from the miniature pig to the canary, fertile eggs, and several kinds of tissue culture systems. Though some results of these painstaking efforts seemed promising at first, they have remained largely unconfirmed.

In 1956, Rightsel *et al.* reported the isolation from patients with infective hepatitis and serum jaundice of a group of transmissible agents cytopathic for cultures of certain cells of human origin. Because of the previous disappointing results, this report was received with some reserve. Earlier in this year, Davis reported the isolation of 13 viruses from the stools of children with infective hepatitis. These viruses gave characteristic lesions in a line of tissue-culture cells of human origin and did not grow in other animal cells. The were all serologically related and were distinct from known viruses; further they were neutralised by convalescent hepatitis serum. There was no direct evidence that they caused hepatitis.

Now Rightsel *et al.* and Boggs *et al.* report from the U. S. A. fnrther virological studies and clinical trials with viruses isolated from cases of infective hepatitis.

The results are striking. There seems no question but that these workers have isolated a group of viruses comprising of at least three serotypes. When these viruses were inoculated parenterally, they caused disease clinically indistinguishable from infective hepatitis even after several passages in tissue culture. The viruses, which proved amenable to

conventional virological techniques, have to some extent been characterised. The particles seen in electron micrographs are among the smallest recorded—12-18 mu. in diameter, a size commensurate with filtration and ultracentrifugation data. Infectivity was retained after heating (in serum) to 60°C for 30 minutes and was resistant to ether.

This work represents a great stride in the elucidation of human hepatitis, but much remains to be done. For example, we need to know how many serological types of virus are involved and their relative virulence. Only then may we learn enough about the natural history of such infections to make some rational approach to prevention. The American workers are to be congratulated on plucking a ripe but elusive plum. It remains to be seen what kind of pie can be made with it.

— The 'Lancet', No. 7215 Vol II for 1961 — 9th December, 1961.

ASSOCIATION NOTES

BRANCH NOTES

Madras City Branch:

1. A Special Executive Committee Meeting was held on 22—1—1962 to discuss the auditor's report aud other matters.

Annual Meeting.

2. The 26th Annual General Body Meeting for 1960—1961 was held on 28th January 1962 at the Madras Medical College. After tea the meeting began at 6 P. M. with Dr. R. G. Krishnan in the chair.

Before the commencement of the meeting, the members stood in silence for two minutes in memory of the two demised members, viz. Dr. U. Sripathi Rao, former Secretary, I. M. A., Madras City Branch and Dr. S. E. D. Masilamani, former Health Officer, Corporation of Madras.

Dr. G. Sriramulu, ex-President and Chairman of the Silver Jubilee Celebration Committee presented a cheque for Rs. 1,432 = 94 to the Association along with a photo album.

The General Body has expressed its grateful appreciation of the activities of the Silver Jubilee Committee. The General Body has earmarked the above sum of Rs. 1,432 = 94 towards the Building Fund.

The following office-bearers were elected:

President	:		Dr. R. G. Krishnan
Vice-Presidents	:	1.	Dr. D. R. Varman
		2.	Dr. K. V. Swamy
Secretaries	:	1.	Dr. Nanjunda Rao
		2.	Dr. Damodhara Das
Treasurer	:		Dr. P. Krishnaswamy

Election of an executive committee and representatives for the State and Central Councils of the I. M. A. was also held. There was also an interesting variety entertainment and later there was a subscription dinner.

Madurai Branch:

A monthly meeting of the Madura Medical Association was held on Saturday the 20th January 1962, under the Presidentship of Dr. K. Ramachandran, M. S., Madurai. Dr. S. Kameswaran, M. S., F. R. C. S. (Edin) F. R. F. P. S. (G.), D. L. O., Assistant Professor of E. N. T. Diseases, Madurai Medical College, Madurai, gave an interesting lecture on "Recent Advances in Otorhinolaryngology".

Nilgiris Branch:

The monthly meeting of the Nilgiri District Branch of the Indian Medical Association was held on 10—2—1962 at the Government Headquarters Hospital, Ootacamund with Dr. P. V. Kurian, the President in the chair.

Dr. J. Viswanathan of Govt. Lawley Hospital, Coonoor presented two children with abnormal development. One was a 7 year old girl with macrodactyly of the middle finger of the right hand, a very rare condition. The second was a case of Sprengel's deformity.

This was followed by a panel discussion on "Enteric Fevers Today: Their Management" in which the following members took part:

(1) Dr. S. S. David (Gudalur).

(2) Dr. A. A. Devaraj (Coonoor).

(3) Dr. K. P. S. Nambiar (Wellington).

(4) Dr. A. V. Ramana Reddy (Pasteur Institute, Coonoor).

(5) Dr. J. Viswanathan (Coonoor).

A well organised panel discussion on a subject of common interest where spontaneity and informality prevailed, was found to be a very useful method of presenting clinical subjects.

Ramanathapuram Branch:

An ordinary meeting of the Ramnad District Branch of the Indian Medical Association was held on Sunday, the 21st January, 1962 at 5 P. M. at the A. K. D. Girls' High School Hall, Rajapalayam. Dr. S. Raju Ayyar, L. M. P., presided over the function. Dr. Srinivasan, M. R. C. P., gave a lecture on "The Management of Hypertension". Then Dr. S. Kameswaran, M. S., F. R. C. S. (Edin), F. R. F. P. S. (G), D. L. O., of Erskine Hospital, Madurai, gave a very interesting lecture on "E. N. T. Practice at Home and Abroad". After the lecture there was a film show on "Siquil" and "Mycostatin and Moniliasis" by M/s. Sarabhai Chemicals.

Tiruchy Branch:

1. A monthly meeting of the Association was held on Saturday, 20th January 1962 in the Association premises. About 40 members and 3 guests from Madurai were present. Dr. T. V. Ranganathan, the President presided over the meeting.

Dr. T. V. Srinivasan, the Central Council representative of the Branch gave a short account of the recent I. M. A. and State Conferences held at Kanpur and Vellore respectively.

Then Dr. K. A. Ramalingam, F. R. C. S., Madurai addressed the members on "Orthopaedics in General Practice".

The lecturer delivered an excellent talk on the subject and showed various skiagrams and slides.

2. A meeting of the Association was held on Saturday, the 27th January, 1962 in the Medical Association premises. About 40 members were present. The chief guests were Dr. Mrs. Parvathi Venkoba Rao, Professor of Physiology, Madurai Medical College and Rev. Father Colaco of Rajaji Tuberculosis Sanatorium. Dr. T. V. Ranganathan, the President presided.

Dr. A Venkoba Rao, M. D., D. P. H., Asst. Professor of Psychiatry, Stanley Medical College and Assistant Surgeon, Mental Hospital, Madras addressed the members on "Anxiety State — Its Manifestations and Management".

After the lecture there was a very lively discussion in which many members took part. Father Colaco also spoke on the subject.

EXEMPTION FROM SALES TAX — MADRAS G. O.

Government of Madras

ABSTRACT

Tax — Madras General Sales Tax Act, 1959 — Private Medical Practitioners — Exemption from sales tax and from registration — notified

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REVENUE DEPARTMENT

G. O. Ps. 3431 Dated 11th August 1961.

Read :

G. O. Ms. No. 976 Revenue dated 28—3—1959.

G. O. No. 300 Revenue dated 19—1—1961.

From the Indian Medical Association, Madras State Branch, Coimbatore, petitions No. 322/58—59 dated 9—3—1959, 9—4—1959, 20—4—1959, 12—6—1959 and 20—8—1959.

Government Memorandum No. 23182-N2/59-2 Revenue dated 28—4—1959.

From the Board of Revenue, Revenue, Ref. A-4217/59 dated 14—7—1959.

Government Memorandum No. 23182-N2/59-6 Revenue dated 25—8—1959.

From the Board of Revenue, B. P. Rt. 1768/60 dated 17—11—1960.

ORDER

The Indian Medical Association, Madras State Branch, Coimbatore, has represented that registered medical practitioners should not be treated as dealers carrying on the business of buying or selling goods within the meaning of the Madras General Sales Tax Act and that they should not be required to register themselves as dealers under that Act. The Government have examined the representation of the Association in consultation with the Board of Revenue. The Private Medical Practitioners who dispense medicines may be classified under the following three categories :—

(a) those who have dispensaries and dispense medicines not only to their patients but also to others, and also sell patent medicines to the public ;

(b) those who dispense medicines to their patients and who besides charging for the medicine collect also separate consultation fee ;

(c) those who dispense medicines to their patients but charge only for the medicines and do not charge any separate consultation fee.

All the three categories of medical practitioners are 'dealers' as defined in section 2(g) of the Madras General Sales Tax Act, 1959, and the contention of the Indian Medical Association that they should not be treated as 'dealers' is not acceptable. However, the Government have already exempted from sales tax and from registration under the Madras General Sales Tax Act, 1959, the medical practitioners coming under category (c) above. The Government have since decided that the medical practitioners coming under category (b) should also be

exempted from sales tax and from registration. As regards the medical practitioners under category (a), the Government see no grounds to exempt them from the provisions of the Madras General Sales Tax Act, 1959.

2.

* * * *

3. The annexed notification will be published in the Fort Saint George Gazette.

(By Order of the Governor)

G. K. MAHADEVAN,
Deputy Secretary to Government.

To

The Board of Revenue (C. T).
,, Indian Medical Association, Madras State Branch, 328, Raja Street, Coimbatore.
,, Deputy Commissioners of Commercial Taxes, Madras, Madurai and Coimbatore.
All Commercial Tax Officers (with spare copies to Joint Commercial Tax Officers, Deputy Commercial Tax Officers and Assistant Commercial Tax Officers).
All Appellate Assistant Commissioners of Commercial Taxes.
The Madras Sales Tax Appellate Tribunal.
,, State Representative, Madras Sales Tax Appellate Tribunal.
,, Legislative Assembly Department.
,, Legislative Council Department.
,, Public (I. & P.) Department.
,, Controller of Stationery & Printing, Madras, (for publication of the notification in the Fort Saint George Gazette - para 3 and notification only).

} Para 1 and 3 only.

(True Copy)

Forwarded

(By Order)

(Sd.) M. RANGACHARI,
Superintendent.

NOTIFICATION I.

In exercise of the powers conferred by sub-section (1) and (2) of section 17 of the Madras General Sales Tax Act, 1959, (Madras Act I of 1959) and in modification of the Revenue Department Notification S. R. O. No. A. 1966 of 1959 dated the 28th March 1959, published at pages 488-490 of Part I of the Fort

Saint George Gazette dated the 1st April 1959, the Governor of Madras hereby exempts from the tax payable under the said Act the sales of medicines by every private medical practitioner owning dispensaries and dispensing medicines to his patients only, whether he charges consultation fee or not.

NOTIFICATION II.

In exercise of the powers conferred by sub-section (2-A) of section 20 of the Madras General Sales Tax Act, 1959 (Madras Act I of 1959) and in modification of the Revenue Department Notification II-1 No. 448 of 1961 dated the 19th January 1961 published at page 160 of Part II - Section I of the Fort Saint George Gazette, dated the 1st February 1961, the Governor of Madras hereby exempts from the operation of section 20 of the said Act every private medical practitioner owning dispensaries and dispensing medicines to his patients only, whether he charges consultation fee or not.

(True Copy)

(Sd.) M. RANGACHARI,
Superintendent.

According to this G. O., every private medical practitioner owning dispensaries and dispensing medicines to his patients only, whether he charges consultation fee or not, is exempt from sales tax as well as registration under Section 20 of the Act. The G. O. is the result of the active efforts made by this Association from 1958 onwards.

63, Swami Naicken Street,
Chintadripet,
Madras-2.

A. PATTABI,
Hony. State Secretary, I. M. A.
Madras State Branch.

METRIC SYSTEM OF WEIGHTS AND MEASURES—AMENDMENTS TO DRUGS RULES

(Copy of G. O. Ms. No. 3673 Home Department dated 15—11—1960)

GOVERNMENT OF MADRAS

(Home Department)

Sub: Prohibition — Acts and Rules — Madras Manufactured Drugs Rules 1932 — Amendments consequent on introduction of metric system of weights and measures — issued.

Read:
1. Memorandum No. 109720 Pro. II/60-3 dated 19—9—1960,
2. From the Director of Medical Services, Madras, No. 87468 D1/59 dated 7—10—1960.
3. From the Controller of Weights and Measures, Madras, No. L. Dis. 9914/60 dated 11—10—1960.
4. From the Board of Revenue (Commercial Taxes) Madras, No. C. R. 20566/60 dated 8—10—1960.

ORDER

No objections or suggestions having been received to the draft amendments to the Madras Manufactured Drugs Rules, 1932, published with Home Department Notification S. R. O. No. A. 330 of 1960 dated the 19th September 1960 at Pages 1 - 2 of the Supplement to Part V of the Fort Saint George Gazette dated the 21st September 1960, the amendments are hereby confirmed.

The notification annexured to this order will be published in the Fort Saint George Gazette.

ANNEXURE

NOTIFICATION

In exercise of the powers conferred by sub-section (2) of section 8 of the Dangerous Drugs Act, 1930 (Central Act 11 of 1930), the Governor of Madras hereby makes the following amendments to the Madras Manufactured Drugs Rules, 1932, published with Revenue Department Notification No. 203, dated the 29th April 1932, at pages 798 to 806 of Part I of the Fort Saint George Gazette dated the 3rd May 1932 as subsequently amended, the same having been previously published as required by sub-section (1) of section 36 of the said Act.

AMENDMENTS

In the said rules —

(1) in sub rule (1) of rule 6, for the expression "120 grains", "¼ oz." and "1/16 oz." occurring in clauses (a) (b) and (bb) respectively, the expression "2 gms." shall be substituted ;

(2) in sub rule (1) of rule 21 —

(i) in the second proviso, for the expressions "ONE (1) oz." and "1/16 oz." the expressions "30 gms." and "2 gms." shall respectively be substituted.

(ii) in the third proviso, for the expression "1/16 oz." in the two places where it occurs, the expression "2 gms." shall be substituted ;

(3) in rule 24 in condition (1), for the expression "20 grains" occurring in the last sentence, the expression "1 gm." shall be substituted ;

(4) in rule 38 for the words "one pound" the expression "0·5 kgm." shall be substituted ;

(5) in Form M - 1, condition VIII (1) —

(i) in the second proviso, for the expression "ONE (1) oz." and "1/16 oz." the expressions "30 gms." and "2 gms." shall respectively be substituted ;

(ii) in the third proviso, for the expression "1/16 oz." in the two places where it occurs, the expression "2 gms." shall be substituted ;

(6) in Form M - 2, in condition IX (1) for the expression "20 grains" the expression "1 gm." shall be substituted and

(7) in Forms M - 3 (a) M - 3 (b) M - 3 (c) aud M - 4 for the letters "lb. oz. grs." "LB. OZ. GR." and "OZ. Gr." wherever they occur, the letters "Kgm. Gm. Mgm. / Litre / Ml. (millilitre)" shall be substituted.

(True Copy)

(Sd.) ....

Superintendent.

THE MADRAS CLINICAL JOURNAL

Statement about "The Madras Clinical Journal" published under Section 19—D sub-section (b) of the Press and Registration of Books Act read with rule 6 of the Registration of Newspapers (Central) Rules, 1956 (as amended).

1. Place of Publication	...	Coimbatore.
2. Periodicity of its publication	...	Monthly.
3. Printer's Name	...	A. Subramaniam.
Nationality	...	Indian.
Address	...	Secretary, The Coimbatore Co-operative Printing Works, Limited, Trichy Road, Coimbatore - 1.
4. Publisher's Name	...	A. G. Leelakrishnan.
Nationality	...	Indian.
Address	...	320, Raja Street, Coimbatore.
5. Editor's Name	...	A. G. Leelakrishnan.
Nationality	...	Indian
Address	...	320, Raja Street, Coimbatore - 1.
6. Names and addresses of individuals who own the newspaper and partners or shareholders holding more than one per cent of total capital.		Indian Medical Association, Madras State Branch, 63, Swami Naicken Street, Chintadripet, Madras - 2.

I, A. G. Leelakrishnan, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Date : 1—3—1962 *Signature of Publisher :* **(Sd.) A. G. LEELAKRISHNAN.**

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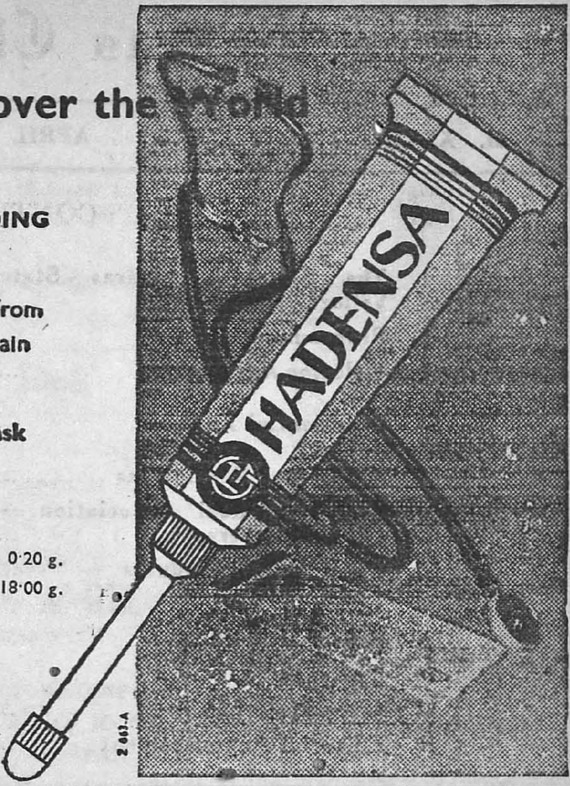

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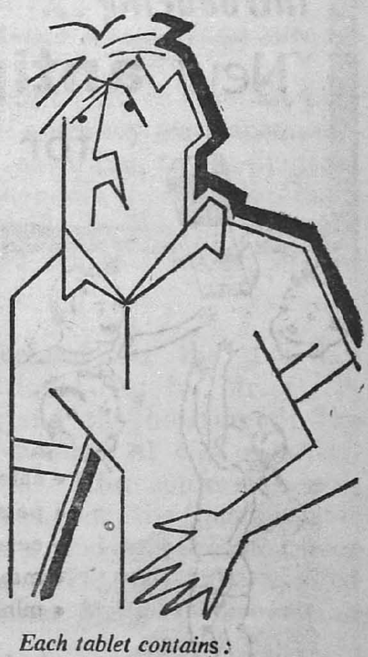

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